

We claim:

1. A method of isolating one or more taxanes from a taxane containing mixture, the method comprising the steps of:

- 5 (a) treating the mixture with a polyethyleneimine-bonded silica chromatographic resin; wherein the one or more taxanes are derived from one or more *Taxux* plants, wherein the one or more taxanes are not derived solely from *Taxus brevifolia*;
- 10 (b) eluting the one or more taxanes from the polyethyleneimine-bonded silica chromatographic resin with an eluant; and
- (c) recovering the eluted one or more taxanes.

2. A method of isolating one or more taxanes from a taxane containing mixture, the method comprising the steps of:

- 15 (a) treating the mixture with a polyethyleneimine-bonded silica chromatographic resin; wherein the mixture comprises less than 25% or greater than 40% by weight of primary taxanes;
- (b) eluting the one or more taxanes from the polyethyleneimine-bonded silica chromatographic resin;
- 20 and
- (c) recovering the eluted one or more taxanes.

3. A method of isolating one or more taxanes, the method comprising the steps of:

- 5 (a) treating a taxane containing mixture with a polyethyleneimine-bonded silica chromatographic resin; wherein the mixture comprises from about 25% to 40% by weight of primary taxanes; wherein the one or more taxanes are not derived solely from *Taxus brevifolia*;
- 10 (b) eluting the one or more taxanes from the polyethyleneimine-bonded silica chromatographic resin; and
- (c) recovering the eluted one or more taxanes.

4. A method of isolating one or more taxanes from material comprising taxane compounds obtained from a semi-synthesis or total synthesis process, the method comprising the steps of:

- 15 (a) treating the material with a polyethyleneimine-bonded silica chromatographic resin; wherein molecules used as reactants in the semi-synthetic or total synthetic process are not derived solely from *Taxus brevifolia*
- 20 (b) eluting the one or more taxanes from the polyethyleneimine-bonded silica chromatographic resin; and
- (c) recovering the eluted one or more taxanes.

5. A method of isolating one or more taxanes from material comprising taxane compounds obtained from a semi-synthesis or total synthesis process:

- 5 (a) treating the material with a polyethyleneimine-bonded silica chromatographic resin; wherein the material comprises less than about 8% by weight of C-2' benzoates of taxol A, B, C, D, E, F or G, combined;
- (b) eluting the one or more taxanes; and
- (c) recovering the eluted one or more taxanes.

10 6. A method of isolating one or more taxanes from material comprising taxane compounds obtained from a semi-synthesis or total synthesis process:

- 15 (a) treating the material with a polyethyleneimine-bonded silica chromatographic resin; wherein the material comprises less than 1.0% by weight of C-2' benzoates of taxol B, C, D, E, F, or G, combined;
- (b) eluting the one or more taxanes; and
- (c) recovering the eluted one or more taxanes.

20 7. A method of isolating taxol A from a naturally derived taxane containing mixture, said method comprising the steps of:

- (a) treating the taxane mixture with a polyethyleneimine-bonded silica chromatographic resin;
- (b) eluting the taxol A from the polyethyleneimine-bonded silica chromatographic resin; and

(c) recovering the eluted taxol A.

8. A method of purifying one or more taxanes from a biomass extract, said method comprising the step of:

- 5 (a) preparing the biomass extract by means other than chromatography;
- (b) treating the biomass extract with a polyethyleneimine-bonded silica chromatographic resin;
- (c) eluting the one or more taxanes from the polyethyleneimine-bonded silica chromatographic resin;
- 10 and
- (d) recovering the eluted one or more taxanes.

9. The method of claims 1-3, wherein the taxane containing material comprises a biomass extract derived from *Taxus media* cultivars.

10. The method of claims 1-3, wherein the taxane containing material
15 comprises a biomass extract derived front *Taxus media* 'Hicksii'.

11. The method of claims 1-3, wherein the taxane containing material comprises a biomass extract derived from *Taxus media* 'Dark Green Spreader'.

12. The method of claims 1-3, wherein the taxane containing material comprises a biomass extract derived from *Taxus baccata*.

20 13. The method of claims 1-3, wherein the taxane containing material comprises a biomass extract derived from *Taxus cuspidata*.

14. The method of claims 1-3, wherein the taxane containing material comprises a biomass extract derived from *Taxus floridana*.

15. The method of claims 1-3, wherein the taxane containing material comprises a biomass extract derived from *Taxus canadensis*.
16. The method of claims 1-3, wherein the taxane containing material comprises a biomass extract derived from *Taxus wallichiana*.
- 5 17. The method of claims 1-3, wherein the taxane containing material comprises a biomass extract derived from *Taxus yunnanensis*.
18. The method of claims 1-3, wherein the taxane containing material comprises a biomass extract derived from *Taxus chinensis*.
19. The method of claims 1-3, wherein the taxane containing material
10 comprises a biomass extract derived from *Taxus media* 'Densiformis'.
20. The method of claims 1-3, wherein the taxane containing material comprises a biomass extract derived from *Taxus media* 'Brownii'.
21. The method of claims 1-3, wherein the taxane containing material comprises a biomass extract derived from *Taxus media* 'Hicksii'.
- 15 22. The method of claims 1-3, wherein the taxane containing material comprises a biomass extract derived from *Taxus media* 'Runyan'.
23. The method of claims 1-3, wherein the taxane containing material comprises a biomass extract derived from *Taxus media* 'Wardii'.
24. The method of claims 1-3, wherein the taxane containing material
20 comprises a biomass extract derived from *Taxus media* 'Tautonii'.
25. The method of claims 4-6, wherein the taxane to be isolated is taxol A.
26. The method of claims 4-6, wherein the taxane to be isolated is taxol B.

27. The method of claims 4-6, wherein the taxane to be isolated is taxol C.
28. The method of claims 4-6, wherein the taxane to be isolated is taxol D.
- 5 29. The method of claims 4-6, wherein the taxane to be isolated is taxol E.
30. The method of claims 4-6, wherein the taxane to be isolated is taxol F.
31. The method of claims 4-6, wherein the taxane to be isolated is
10 taxol G.
32. The method of claims 4-6, wherein the taxane to be isolated is docetaxel.
33. The method of claims 1-8, wherein the polyethyleneimine-bonded silica chromatographic resin has an average pore size ranging from about 60 to
15 about 300 Angstrom Units.
34. The method of claims 1-8, wherein the polyethyleneimine-bonded silica chromatographic resin has an average pore size ranging from about 100 to about 200 Angstrom Units.
35. The method of claims 1-8, wherein the polyethyleneimine-bonded
20 silica chromatographic resin has an average pore size from about 120 Angstrom Units.
36. The method of claims 1-8, wherein the polyethyleneimine-bonded silica chromatographic resin has an average particle size ranging from about 0.25 to about 500 microns.

37. The method of claims 1-8, wherein the polyethyleneimine-bonded silica chromatographic resin has an average particle size ranging from 1 to 100 microns.
38. The method of claims 1-8, wherein the polyethyleneimine-bonded silica chromatographic resin has an average particle size ranging from about 10 to about 120 microns.
39. The method of claims 1-8, wherein the polyethyleneimine-bonded silica chromatographic resin has an average particle size of about 20 to about 60 microns.
40. The method of claims 1-8, wherein the polyethyleneimine-bonded silica chromatographic resin has an average particle size of about 40 microns.
41. The method of claims 1-13, wherein the polyethyleneimine-bonded silica chromatographic resin is DEAM.
42. The method of claims 1-8, wherein the polyethyleneimine-bonded silica chromatographic resin is PEI.
43. The method of claims 1-8, wherein the polyethyleneimine-bonded silica chromatographic resin has an average pore size ranging from about 60 to about 800 Angstrom Units.
44. This method of claims 1-8, wherein the polyethyleneimine-bonded silica chromatographic resin has a primary or secondary amino group on the polyethyleneimine moiety.
45. The method of claims 1-8, wherein the amino groups of the PEI polymer are functionalized.

46. The method of claims 4-6, wherein the eluted one or more taxanes have a purity of at least about 70%.

47. The method of claims 4-6, wherein the eluted one or more taxanes have a purity of at least about 80%.

5 48. The method of claims 4-6, wherein the eluted one or more taxanes have a purity of at least about 90%.